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METHOD FOR DETERMINATION OF SCOURING LOSS OF RAYON FILAMENT YARN

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METHOD FOR DETERMINATION OF SCOURING LOSS OF RAYON FILAMENT YARN

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Indian Standard

METHOD FOR DETERMINATION OF SCOURING LOSS OF RAYON FILAMENT YARN

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 14 December 1984, after the draft finalized by the Chemical Methods of Test Sectional Committee had been approved by the Textile Division Council.

0.2 Continuous filament viscose rayon yarn and acetate yarn commonly used in different sectors of weaving or knitting industry are generally treated with special lubricants or sizes or gelatin during spinning. The general process of cleaning these filament yarns from the added lubricants or sizes is termed as scouring. The knowledge of loss due to scouring is very essential to arrive at the commercial mass of the lot which is an important criteria for grading of these filament yarns.

0.3 Since the lubricants or size used during spinning is not high, the method given in this standard prescribes a simple mild treatment.

0.4 In reporting the result of a test or analysis made in accordance with this standard, if the final value, observed or calculaled, is to be rounded off, it shall be done in accordance with IS : 2-1960*.

1. SCOPE

1.1 This standard prescribes a method for determining the scouring loss of viscose rayon and acetate rayon filament yarns.

2. PRINCIPLE

2.1 A known amount of sample is scoured with mild sodium carbonate solution. The loss in mass is determined and expressed as a percentage of the dry mass of the sample.

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*Rules for rounding off numerical values (*revised*).

3. SAMPLING

3.1 Lot — The quantity of yarn of the same grade and from the same source delivered to a buyer against one despatch note shall constitute a lot. If the lot contains more than 200 kg of yarn, it shall be divided into sub-lots, each weighing 200 kg or less.

3.1.1 Each sub-lot shall be tested separately.

3.2 Unless otherwise agreed to between the buyer and the seller, 15 increments each approximately weighing 10 g shall be taken from different parts of a sub-lot so that a representative sample is obtained. All the increments thus collected shall be thoroughly mixed. This shall constitute the test sample.

4. PREPARATION OF TEST SPECIMENS

4.1 From the test sample, draw at least 2 specimens each weighing about 5 g accurate to the nearest mg.

5. ATMOSPHERIC CONDITIONS FOR TESTING

5.1 The test shall be conducted in prevailing atmospheric conditions.

NOTE — Since the dry masses are determined, it is not necessary to condition the sample.

6. APPARATUS

6.1 Drying Oven — capable of maintaining a temperature of 105° to 110°C.

6.2 Weighing Bottle — with a stopper.

6.3 Weighing Balance — capable of weighing to an accuracy up to 1 mg.

7. REAGENTS

7.0 Quality of Reagents — Unless specified otherwise, pure chemicals shall be employed in tests and distilled water (*see* IS : 1070-1977*) shall be used where the use of water as reagent is intended.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the test results.

7.1 Sodium Carbonate Solution — (2 g/l).

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*Water for general laboratory use (*second revision*).

8. PROCEDURE

8.1 Take a test specimen. Transfer it to a tared weighing bottle. Dry the specimen at 105° to 110°C to constant mass (about 2 hours drying is sufficient) (*see* Note). Determine the oven-dry mass of the test specimen.

NOTE — For acetate rayon a drying temperature of 70-75°C shall be used and the period of drying may be prolonged to 4 hours till a constant mass is obtained. If two consecutive readings taken at an interval of 30 minutes of drying do not differ by more than 2 mg, it should be taken as constant mass.

8.2 Take the dried test specimen in a beaker containing 250 ml of 2 g/l sodium carbonate solution. Treat the test specimen in this solution at 60-70°C for 30 minutes. After this take out the test specimen, wash it thoroughly with hot water (below 70°C) and dry it in the tared weighing bottle, as prescribed in **8.1**, to a constant mass. Determine the oven-dry mass of the treated test specimen.

NOTE — The material to liquor ratio should be 1 : 50.

8.3 Calculate the percentage of scouring loss by the following formula:

$$S = \left(\frac{m_1 - m_2}{m_1} \right) \times 100$$

where

S = scouring loss, in percent, by mass on oven-dry basis;

m_1 = oven-dry mass, in g, of the specimen before scouring; and

m_2 = oven-dry mass, in g, of the specimen after scouring.

8.4 Repeat the procedure given in **8.1** and **8.2** with the remaining test specimen(s) and calculate the percentage of scouring loss by the formula given in **8.3**.

8.5 Calculate the average of the values obtained as in **8.3** and **8.4**.

9. REPORT

9.0 The report shall include the following information:

a) Type and grade of material; and

b) Average scouring loss, percent.

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

QUANTITY	UNIT	SYMBOL
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

QUANTITY	UNIT	SYMBOL
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

QUANTITY	UNIT	SYMBOL	DEFINITION
Force	newton	N	1 N = 1 kg.m/s^2
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m^2
Frequency	hertz	Hz	1 Hz = 1 c/s (s^{-1})
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m^2